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# Acute inflammatory edema as a variant of pseudocellulitis resolved after transcatheter aortic valve implantation

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## ABSTRACT

Acute inflammatory edema is a noninfectious inflammatory condition of the skin that is commonly seen in critically ill patients. It is characterized by edematous, erythematous, and nontender plaques involving the abdomen and thighs, sparing areas of the skin subject to pressure. Risk factors include fluid overload, hypoalbuminemia, and obesity. Differentiating acute inflammatory edema from cellulitis can be challenging. Supportive care is the mainstay therapy for acute inflammatory edema, with interventions primarily focused on lowering the fluid burden. We report an unusual case of a nonobese patient in the outpatient setting with acute inflammatory edema.

**KEYWORDS** Acute inflammatory edema; cellulitis; fluid overload; inpatient dermatology; pseudocellulitis

Acute inflammatory edema, also known as "erythema of edema" and "inflammatory edema of the intensive care unit," is a noninfectious inflammation of the dermal layer of the skin.[1] It is commonly seen in critically ill patients, particularly in patients admitted to the intensive care unit. We report an unusual case of acute inflammatory edema in a nonobese patient in the outpatient setting.

## CASE PRESENTATION

An 89-year-old white woman with a body mass index of 18.4 kg/m$^2$ presented to our dermatology clinic for evaluation of bilateral lower leg erythema and edema. She noticed the swelling and erythema 2 weeks earlier. Past medical history included chronic atrial fibrillation, congestive heart failure, and previous episodes of lower-extremity edema. She reported a 20-pound weight gain in 2 weeks. Physical examination revealed 2+ pitting edema on bilateral lower legs extending from the ankles to mid-thighs. The right leg was brightly erythematous with well-demarcated areas of sparing medially and subtle peau d'orange changes *(Figure 1a)*. Several erythematous patches were observed on the left shin. A punch biopsy showed mild spongiosis and acanthosis of the epidermis; a perivascular and interstitial infiltrate of lymphocytes and histocytes with prominent dermal edema was noted. Tissue culture was negative. Scleral icterus was noted and liver function tests were elevated. She was started on spironolactone for her cardiogenic cirrhosis. Then, a transcatheter aortic valve replacement was performed for her underlying heart failure. Three months after initial presentation, the patient reported full resolution of redness and swelling of her legs *(Figure 1b)*. Based on the presentation and findings, a clinical diagnosis of acute inflammatory edema was made.

## DISCUSSION

Acute inflammatory edema commonly presents as bilateral, edematous, and erythematous plaques mainly involving the thighs and abdomen and less commonly the flanks, buttocks, and arms.[2] It notably spares areas of the body where there is pressure on the skin, particularly skin folds. While the pathogenesis is not fully elucidated, acute inflammatory edema is theorized to be brought about by volume overload and impaired lymphatic drainage. This leads to the amassment of dermal edema, causing microtrauma to the connective tissue and influx of inflammatory cells.[1]

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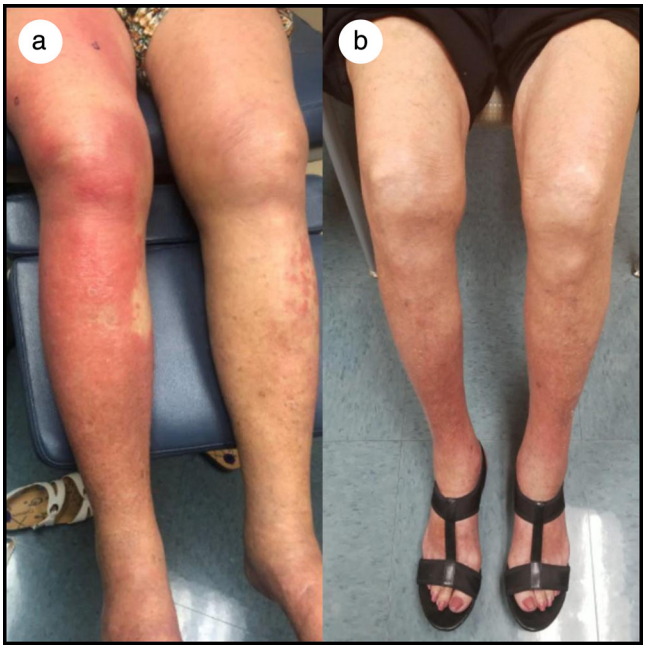


**Figure 1.** **(a)** The erythematous and edematous nature of the patient's right leg, with the left leg being remarkably less erythematous. **(b)** Resolution 1 month after transcatheter aortic valve replacement procedure and 3 months from initial visit.

This disease has a predilection for patients who have a high body mass index, are fluid overloaded, and are typically in the intensive care unit.[1] In the study of Marchionne et al, 87% of patients had a body mass index $\geq$25 kg/m$^2$. Further, 93% of the patients had clinical signs of fluid overload, and 80% of the patients were in an intensive care unit setting. Acute inflammatory edema is mainly a clinical diagnosis; however, biopsy and culture can be performed to rule out cellulitis and other causes of pseudocellulitis.[1,3] Reassurance and supportive care, along with encouraging mobility, use of compression, repositioning, and improving the patient's fluid status (e.g., diuretics) are therapy options.[2] If misdiagnosed as cellulitis, antibiotics should be discontinued.[1,3]

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